UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,537	07/03/2003	Michael R. Butts	700693-4022	9026

34313   7590   03/24/2008
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ART UNIT	PAPER NUMBER
2157	

MAIL DATE	DELIVERY MODE
03/24/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>03 July 2003</u>.
2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-29</u> is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) <u>1-29</u> is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☐ All   b) ☐ Some * c) ☐ None of:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____.
      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date <u>11/28/2003</u>.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____ .

DETAILED ACTION

1.   This action is responsive to application filed July 3, 2003. Claims 1-29 are

pending examination.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or
> any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and
> requirements of this title.

2.   Claims 1-21 are rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter.

Claims 1-21 are rejected as computer programs per se, i.e., the descriptions or

expressions of the programs. Such programs are not physical "device or structure" nor

are they statutory processes, as they are not "acts" being performed. The computer

programs do not define any structural and functional interrelationships between the

computer program and other claimed aspects of the invention which permit the

computer program's functionality to be realized.

Claims 1-21 are rejected under 35 USC § 101 because the claimed inventions

are directed to non-statutory subject matter. Claims 1-21 are directed to disembodied

data structure which are per se are not statuatory (*In re Warmerdam,* No. 93-1294 (Fed.

Cir. August 11, 1994)). The examiner suggests to redraft the claims to include a

computer-readable medium so that the claimed software in combination with a

computer-readable medium will be capable of producing a useful, concrete and tangible

result. A claim to a computer-readable medium encoded with functional descriptive

material that can function with a computer to effect a practical application that results in a useful, concrete and tangible result (i.e. executing a stock transaction or generating an investment portfolio)

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3.   Claims 1-4 and 6-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Dowling et al., U.S. Patent No. 6,574,239 (referred to hereafter as Dowling).

As to claim 1, Dowling teaches a co-verification interface for design verification systems, comprising:

an application layer having a plurality of communication connections configured to communicate with a first system element (see col. 8 lines 34-42);

a network layer in communication with said plurality of communication connections and being configured to select a communication connection from said plurality of communication connections (see col. 6 lines 26-52 and col. 8 lines 34-67 and col. 9 lines 29-58);

a data link layer having a communication connection in communication with said

selected communication connection and being configured to communicate with said

network layer to provide flow control for said communication connection of said data link

layer (see col. 6 lines 26-52 and col. 8 lines 34-67); and

a physical layer having a communication path in communication with said

communication connection of said data link layer and being configured to communicate

with a second system element (see col. 6 lines 26-52 and col. 8 lines 34-67).

As to claim 2, Dowling teaches the co-verification interface of claim 1, wherein

said application layer is configured to couple with said first system element via a

standard coupling interface (see col. 8 lines 45-65).

As to claim 3, Dowling teaches the co-verification interface of claim 2, wherein

said standard coupling interface comprises an Application Programming Interface (see

col. 8 lines 45-65).

As to claim 4, Dowling teaches the co-verification interface of claim 2, wherein

said standard coupling interface comprises a Peripheral Virtual Component Interface

(see col. 8 lines 45-65).

As to claim 6, Dowling teaches the co-verification interface of claim 1, wherein

said co-verification interface is configured to communicate outgoing communication

signals from said first system element to said second system element (see col. 9 lines

60-col. 10 lines 28).

As to claim 7, Dowling teaches the co-verification interface of claim 1, wherein said co-verification interface is configured to communicate incoming communication signals from said second system element to said first system element (see col. 9 lines 60-col. 10 lines 28).

As to claim 8, Dowling teaches the co-verification interface of claim 1, wherein said application layer is configured to couple with a virtual system element (see col. 9 lines 60-col. 10 lines 28).

As to claim 9, Dowling teaches the co-verification interface of claim 1, wherein said application layer is configured to open and close each of said plurality of communication connections (see col. 9 lines 28-60).

As to claim 10, Dowling teaches the co-verification interface of claim 1, wherein said plurality of communication connections of said application layer is configured to communicate with a plurality of system elements (see col. 9 lines 60-col. 10 lines 28).

As to claim 11, Dowling teaches the co-verification interface of claim 1, wherein said application layer is segmented into a plurality of application layer segments each including at least one of said plurality of communication connections (see col. 9 lines 60-col. 10 lines 28).

As to claim 12, Dowling teaches the co-verification interface of claim 11, wherein at least two of said application layer segments support different types of communication signals (see col. 10 lines 56-col. 11 lines 20).

As to claim 13, Dowling teaches the co-verification interface of claim 1, further

comprising a standard interface for coupling said data link layer with said physical layer

(see col. 10 lines 56-col. 11 lines 20).

As to claim 14, Dowling teaches the co-verification interface of claim 13, wherein

said standard interface is disposed substantially between said network layer and said

data link layer (see col. 10 lines 56-col. 11 lines 20).

As to claim 15, Dowling teaches the co-verification interface of claim 1, wherein:

said network layer is configured to select at least one communication connection from

said plurality of communication connections; said data link layer is segmented into a

plurality of data link layer segments each having a communication connection in

communication with at least one of said at least one communication connection and

being configured to communicate with said network layer to provide flow control for said

at least one of said at least one communication connection; and said physical layer

includes a plurality of communication paths, said communication connection of each of

said plurality of data link layer segments each being in communication with one of said

plurality of communication paths (see col. 9 lines 60-col. 10 lines 28).

As to claim 16, Dowling teaches the co-verification interface of claim 15, wherein

at least two of said data link layer segments support different types of communication

signals (see col. 10 lines 56-col. 11 lines 20).

As to claim 17, Dowling teaches the co-verification interface of claim 1, wherein said physical layer configured to couple with a physical system element (see col. 10 lines 56-col. 11 lines 20).

As to claim 18, Dowling teaches the co-verification interface of claim 1, wherein said communication path of said physical layer comprises at least one unidirectional communication path (see col. 10 lines 56-col. 11 lines 20).

As to claim 19, Dowling teaches the co-verification interface of claim 1, wherein said physical layer forms at least one bi-directional communication path comprising a pair of unidirectional communication paths, each being configured to transmit communication signals in opposite directions (see col. 10 lines 56-col. 11 lines 20).

As to claim 20, Dowling teaches the co-verification interface of claim 1, wherein said physical layer is configured to communicate with said second system element via a second co-verification interface (see col. 10 lines 56-col. 11 lines 20).

As to claim 21, Dowling teaches a co-verification interface for design verification systems, comprising: a first application layer having a plurality of communication connections configured to communicate with a physical system element; a first network layer in communication with said plurality of communication connections of said first application layer and being configured to select a first communication connection from said plurality of communication connections of said first application layer; a first data link layer having a communication connection in communication with said first communication connection and being configured to communicate with said first network

layer to provide flow control for said communication connection of said first data link

layer; a physical layer having a communication path in communication with said

communication connection of said first data link layer; a second application layer having

a plurality of communication connections configured to communicate with a virtual

system element; a second network layer in communication with said plurality of

communication connections of said second application layer and being configured to

select a second communication connection from said plurality of communication

connections of said second application layer; and a second data link layer having a

communication connection in communication with said second communication

connection and said communication path and being configured to communicate with

said second network layer to provide flow control for said communication connection of

said second data link layer (see col. 10 lines 56-col. 11 lines 20, col. 8 lines 34-67 and

col. 9 lines 29-col. 10 lines 43).

Claims 22-29 have similar limitations as claims 1-21 and therefore are rejected

for similar reasons.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dowling.

Dowling teaches the co-verification interface wherein said application layer is configured to couple with said first system element via a standard coupling interface (see col. 8 lines 45-65). Dowling does not explicitly teach that the standard coupling interface comprises an Open Core Protocol. Official notice is taken that it would have been obvious for one of the ordinary skill in the art at the time of the invention to implement open core protocol in Dowling's interface. Motivation to do so comes the knowledge well know in the art that implementing Open Core protocol would facilitate a plug and play interface and therefore make the interface more user friendly.

5.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

6.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUSSEIN A. EL CHANTI whose telephone number is (571)272-3999. The examiner can normally be reached on Mon-Fri 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571)272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hussein Elchanti

March 14, 2008

/Ario Etienne/
Supervisory Patent Examiner, Art Unit 2157